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IDENTIFIERS	Computer Games

ABSTRACT

Materials appropriate for instruction in the use of computers in the intermediate grades, junior high schools, and high schools are listed in this advisory list by type of media: activity cards; books; books (for teacher use); books (supplementary texts); book (workbook); book (workbook) with disks; filmstrips (sound); kit (including disks, guide and workbooks, transparencies, and posters) and recordings (cassette tapes). Each entry includes citation, format, price, publisher or producer, grade level, and annotation. Entries in the list were selected from those materials submitted by publishers and producers which received favorable reviews by educators. A directory of publishers and producers is included. (THC)

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ADVISORY LIST OF COMPUTER-RELATED MATERIALS

North Carolina State Department of Public Instruction
Educational Media and Technology
Division of Media Evaluation Services
September 1983

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Educational Media and Technology
State Department of Public Instruction

Raleigh, North Carolina
September 1983

ADVISORY LIST OF COMPUTER-RELATED MATERIALS

ACTIVITY CARDS

BEGINNING WITH *BASIC*. 60 cards $9.95. Milton Bradley, 1983. (Available from Stone's.) Grades 5-10

With these lessons the student learns to use line numbers and simple commands such as PRINT, END, RUN; discovers the significance of punctuation; practices using variables and strings; GOTO and FOR-NEXT statements. Sequential lessons should be directed by the teacher, though an adept student can follow the printed instructions and grasp essential elements by analyzing the results. *Introduction* cards describe the overall program, *definition* cards explain use of specific keys and programming statements, *teacher's* cards explain and amplify lessons so that the teacher can help students understand what is happening when they execute a program from the *student* cards. The teacher will have to explain a few operations such as CONTROL C and LIST. Excellent lessons for developing an awareness of the techniques and potential of computer programming.

PROGRAMMING ANIMATION AND GRAPHICS. 60 cards $9.95. Milton Bradley, 1983. (Available from Stone's.) Grades 5-10

These lessons introduce beginning BASIC programmers to simple animation and graphics techniques. Students execute more than thirty programs while becoming familiar with nearly twenty directions. *Definition* cards explain frequently used words, terms, and commands such as HTAB, VTAB, MID$, LEN, HGR. *Student* cards give step-by-step directions for producing a variety of graphics or animated displays such as moving letters, dropping eggs, creating fireworks, and drawing with paddles. Students may not always be able to predict outcome of directions, but they will be gratified with the results of carefully inputting each command. *Teaching* cards explain goals and objectives of each activity. Though commands are not totally interdependent, procedures progress in logical order in terms of use and complexity. Excellent introductory activities for independent use or group instruction.

BOOKS

Brain, David, et al. THE *BASIC* CONVERSIONS HANDBOOK FOR APPLE, TRS-80, AND PET USERS. 80 p. $8.95 paper. Hayden, 1981. Grades 10-12

This handbook is a concise and easily usable reference manual. The authors have managed to assemble all the commonly used BASIC commands in a fashion that makes locating the needed conversion a simple and quick procedure. The comments are brief and to the point. They were obviously written by someone who has suffered through wordy and nearly useless comments in other "reference works." The appendices round out this very useful work by providing examples, common subroutines, and a helpful collection of charts. The average programmer who has found a long needed program only to find that it was written for some other machine will find this manual the perfect aid for converting programs written for either the Apple, TRS-80, or PET so that they will run on either of the other two machines.

D'Ignazio, Fred. ELECTRONIC GAMES. 64 p. $7.90. Watts, 1982. Grades 4-12

This easily read book will provide the reader with some insight into the technology, development, and future of electronic games. Categories described include hand-held, arcade, video, and home computer games. One chapter offers guidelines to use when shopping for games; another chapter suggests winning strategies. A few black-and-white photographs illustrate the text which also includes a bibliography and index.

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BOOKS (FOR TEACHER USE)

Brumbaugh, Ken, and Don Rawitsch. ESTABLISHING INSTRUCTIONAL COMPUTING: THE FIRST STEPS. 68 p. $1.50 paper. MECC, 1982. (Available from Phi Delta Kappa.)

This tiny handbook was written to help school systems create and implement a district-wide plan for using microcomputers in the instructional program. Brief chapters address important elements of such a plan: identifying specific decisions to be made (e.g. when and where computers will be used), noting ways in which computer literacy can be developed within the existing curriculum (e.g. dealing with the problem of the computer's impact on society in a social studies class), offering some limited, but realistic ideas for incorporating microcomputer programs into the normal lesson plan, and giving some practical ideas for the physical placement of the equipment. There is a solid discussion of the difficulties of finding appropriate courseware, with strong warnings about the hazards of a school system relying on in-house development of programs.

This handy little volume will be useful to any educator who is interested in the classroom use of microcomputers. A more extensive guide for those educators already involved in planning is *The PDK Guide: An Introduction to Microcomputer Literacy for Educators* described later in this advisory list.

Lathrop Ann, and Bobby Goodson. COURSEWARE IN THE CLASSROOM: SELECTING, ORGANIZING, AND USING EDUCATIONAL SOFTWARE. 187 p. $10 paper. A-W, 1983.

In this discussion of microcomputers in the classroom for computer-assisted instruction, the authors focus on evaluating courseware and organizing a collection. In the body of the text, they cite several commercially available CAI packages and weave these titles into a general discussion of how such materials could be used. The appendices include more specific information covering copyright regulations, evaluation guidelines from some reviewing projects, and a courseware directory with cataloging information, producers' addresses, and references to favorable reviews for over one hundred CAI programs.

This work will be most helpful to teachers just starting to consider computer-assisted instruction even though it will not provide them with specific utilization plans. The mention of specific courseware titles will tend to date this book therefore an order form is included with which purchasers can order (for $7.50) an updated supplement scheduled for publication in the spring of 1984.

Metzcus, Richard H. THE PDK GUIDE: AN INTRODUCTION TO MICROCOMPUTER LITERACY FOR EDUCATORS. 330 p. $37.50. (Duplicating rights available for $35.00.) Phi Delta Kappa, 1983.

An excellent reference for elementary and secondary staff development or for professionals in higher education who are responsible for teacher training. The material is presented from the viewpoint that there is real educational potential in computer-assisted instruction and that programming skill is not necessary for most students and teachers. Though sections of this guide do require some familiarity with a computer, the overall program is developed cyclically with each essential point reiterated in greater and greater depth so that the novice will not be overwhelmed.

The unit on hardware and technology explains the uses of each component and the differences in various kinds of equipment, e.g. dot matrix as opposed to daisy wheel printers. The units on software discuss specific uses of CAI, CMI, and administrative programs, copyright restrictions, and differences between several kinds of machine languages. The directions for evaluating courseware include evaluation forms and rating scales.

Unique to this guide is a detailed scheme for a school's acquisition and utilization

THE PDK GUIDE: AN INTRODUCTION TO MICROCOMPUTER LITERACY FOR EDUCATORS. (Cont'd.)

of microcomputers. Though drawn for a hypothetical junior high school with six hundred students in grades 7 through 9, the one, two, and three-year plans are adaptable to any school's needs. The plans assume one machine per 20 students, 50 contact hours per student per year, and a budget ranging from $22,000 for one year to $100,000 for the three-year plan. There are suggested forms to use for requesting hardware proposals from vendors, forms for evaluating features of equipment components such as CPU's, printers, or keyboards, and checklists and scoring sheets for rating vendors' bids.

A thirteen-page glossary defines programming, hardware, and application terms. The final segment of the first edition of this guide contains ten Microsift and four MECC (Minnesota Educational Computing Consortium) reviews of programs appropriate for use in junior high schools.

This large, complete guide is well organized into readily identifiable units. It can be used as a guide by an instructor with only minimal familiarity with computers and terminology. A one-time payment of an additional $35.00 will give educational agencies the right to duplicate pages for reference or study. The three-ring binder arrangement makes this a convenient resource for anyone charged with the responsibility of organizing a school's instructional computing program. A brief introduction to the practical questions involved when planning to use microcomputers in the classroom is available in *Establishing Instructional Computing: The First Steps* described earlier in this advisory list.

BOOKS (SUPPLEMENTARY TEXTS)

Gledhill, V.X. DISCOVERING COMPUTERS. 233 p. with instructor's guide $10.36 paper. SRA, 1981. Grades 10-12

This computer literacy text is designed to familiarize students with computers and computer-related concepts. The author begins by introducing the computer keyboard using the Apple II+ as a model. Problem-solving techniques are introduced through word problems that can be solved without the use of a computer. Once these techniques have been mastered, the student then learns how a computer could be used to solve similar problems. The author disclaims any desire to teach programming in detail so discussions do not include the specific commands used in creating code for programs; instead, they follow a general approach by examining sample BASIC programs and showing the relationship between the line numbers and a flowchart. The book also includes units on the history and development of computers, effects of computers on our society, and future trends. The computer program designed to be used in the first chapter is listed in the appendix of the text for the instructor to load into a computer then store on a cassette or disk for repeated use. A teacher's guide, supplementing chapters one through six of the text, provides objectives, lesson overviews, explanations of assigned exercises, and a set of drill questions. Later chapters are not so technical and do not require such support. Instruction from this text will provide general background information for those students without access to a computer.

Richman, Ellen. SPOTLIGHT ON COMPUTER LITERACY. 186 p. $4.95 paper. teacher's guide $2.50 paper. Random, 1982. Grades 7-12

A beginner's guide to the world of computers, this textbook introduces the reader to what a computer is, how it works, what it can do, how computers are used in our society, and how to program a computer using the BASIC programming language. Clearly written and filled with understandable examples, the book uses clever line drawings to illustrate the text and to hold the reader's attention. The author has set up the

SPOTLIGHT ON COMPUTER LITERACY. (Cont'd.)

book so that the first several chapters can be used without having access to a computer. Later chapters are intended to be used with a computer. The author has included exercises for Apple, Atari, PET, and TRS-80 microcomputers so the book can be used with whichever computer is available. The accompanying teacher's guide gives a chapter-by-chapter list of teaching objectives, needed vocabulary, discussion suggestions, related activities for applying the information introduced, and answers to the check-up questions.

This good introduction to computers and computer programming could be used for teaching computer literacy to students or teachers.

Tomek, Ivan. INTRODUCTION TO COMPUTER ORGANIZATION. 456 p. $25.95. workbook $8.95. Computer Sci., 1981. Grades 10-12

This text is useful for students who are seriously interested in studying computer science. After an introductory overview of the hardware, other chapters address combinational and sequential circuits, coding, number representation and arithmetic. The author also discusses the hardware in the Heathkit ET-3400 and Radio Shack TRS-80 microcomputers, the PDP-11 minicomputer, and several larger computers. There are frequent references within the text and in the bibliography to supplemental books and periodicals. There is also an extensive glossary. The companion workbook contains solutions to the problems in the text plus laboratory experiments to parallel and demonstrate the concepts taught in the text. Though the author has reduced hardware to its simplest terms, the book may still present difficulties for any but the advanced high school student. Teachers will find it a useful reference.

BOOK (WORKBOOK)

Finkel, Leroy. LEARNING WORD PROCESSING CONCEPTS USING *APPLE WRITER*. 77 p. $7 paper. instructor's manual and key $2.50. McGraw, 1983. Grades 7-12

An easy-to-use tutorial introduces students to word processing through hands-on activities using *Apple Writer* (version 1.1) on the Apple II Plus. The six units require students to practice specific techniques including capitalization, deletions and insertions, moving blocks of text, and printing text. The student workbook presents the commands and key functions, some application activities using the commands, and periodic check-up quizzes. A teacher's manual suggests classroom management and grading practices. It also includes two reproducible tests to administer after the fourth and sixth units. As a guide this workbook may actually be easier to understand and teach from than the manual which accompanies *Apple Writer*.

BOOK (WORKBOOK) WITH DISKS

UNDERSTANDING COMPUTERS. 4 diskettes, workbook, teacher's manual $239. Ency. Brit. Ed., 1983. Grades 8-10

Equipment required: Apple II, disk drive

This comprehensive computer literacy course is designed to provide workbook readings and exercises complemented by computer activities which extend the students' knowledge and reinforce their understanding of the material presented in the workbook lessons. There is a review quiz at the end of each chapter. Topics include a general introduction to computers, how computers function, applications,

UNDERSTANDING COMPUTERS. (Cont'd.)

advantages of using computers, and their effects on society.

Chapter 1 presents an overall introduction to computers and provides drill in the use of the computer keyboard. The keyboard shown in the student workbook and on the computer display is not quite the same as that on an Apple II+ or IIe but is general enough to work with either computer. After a short practice the user is able to play a game shooting down asteroids marked with letters, numbers, and symbols in order to practice keyboarding skills. A third section demonstrates the features of a computer by having the student select activities which call on the computer to manipulate numbers, display graphics, demonstrate short-term memory, and play music.

Chapter 2 demonstrates the data manipulation capabilities of the computer. It includes a student information database exercise, a taste-test activity, and an exercise that shows how a computer could control household energy consumption.

Chapter 3 covers computer hardware and how computers work. Activities include games, a crossword puzzle, and a quiz which rewards the student with computer generated art.

Chapter 4 introduces computer programming. The student creates geometric patterns by giving the computer commands which reinforce the concepts of logic and sequence in programming. A clever flowcharting activity illustrates the importance of sequence by allowing the student to fill in the flowchart that controls a robot's movements across the screen. If the flowchart is correct the robot carries out its assigned task; if the student has made a mistake the robot falls onto the floor in a heap. This chapter also lets the user practice inputting data in a BASIC program.

Chapter 5 explains how software controls computers, how software is designed and how it can be evaluated. The students are shown how to create a database, edit it, and design reports to use the data. This lesson is the most complex in the entire package and requires careful study of the workbook before proceeding.

Chapter 6 includes a demonstration of a word processing program. There is also a simulation of how bank officials would track down a computer crook who has gained illegal access to the bank's computer.

The package is a good mixture of print materials supported by computer programs which are an integral part of the package rather than an add-on included to entice the unwary. The very wide scope permits this to be used as the basis of a course in computer literacy rather than as a supplementary package to be taken off the shelf for a day or a week.

The program does not keep any records of student progress beyond short-term score keeping. This means that students must remember which exercises they have completed and how they scored. A programming error was found in the second example of the BASIC programming section. The computer refused to accept the input that it requested and returned to the menu without running the program.

In summary, the package could be used to introduce computers and their uses in our society. The computer activities support and enrich the printed material exceptionally well.

Publishers state that this program is also available for the TRS-80, Model III microcomputer.

FILMSTRIPS (SOUND)

Filmstrips (Sound) in a Series

INTRODUCTION TO COMPUTERS. 4 color filmstrips, 4 cassette tapes, 24 reproducible worksheets, guide $195. SVE, 1981. Grades 5-7
Titles: THE PURPOSE OF COMPUTERS; HARDWARE AND SOFTWARE; THE IMPACT OF COMPUTERS; UNDERSTANDING PROGRAMMING

This very general overview of computers covers early computer awareness, how computers work, computers in everyday life, and how computers are programmed. The generalized information will apply to any computer operation and thus be informative to the absolute novice; on the other hand anyone with minimum familiarity with microcomputers will immediately be aware that the exceptions are not being mentioned.

In the first filmstrip a group of youngsters discuss the uses, advantages, and disadvantages of computers. The second strip has a high school team manager compute basketball statistics thus demonstrating computing elements such as input, output, programming languages, and memory. The airline industry serves as a focal point of the third strip which briefly explores additional uses of computers and possible job opportunities. It also recaps some of the computer's capabilities. In the last strip a student creates a flowchart to plan a computer solution to a math problem.

The teacher's manual lists objectives, summarizes individual strips, provides reproducible worksheets for the suggested related activities, and also includes a glossary and complete script.

This broad, cursory program is appropriate for introducing middle grade youngsters to the use of computers.

KIT

COMPUTER LITERACY: AN INTRODUCTORY COURSE. 5 disks, instructor's guide, 15 student workbooks, 15 transparencies, 8 posters $119.00. Continental Pr., 1982. Grades 6-12

Equipment required: Apple II, disk drive

Fifteen 45-minute lessons are neatly outlined in this kit of materials designed to support a beginning course or workshop on computer literacy. The kit includes a teacher's guide, workbooks, posters, transparencies, and five copies of the floppy diskette which contains two introductory activities. The teacher's guide describes each lesson, lists student objectives with the concepts to be introduced, and gives background information about each topic covered. The guide also includes sample programs written in BASIC, a bibliography of related books and periodicals, and a glossary of terms. Information on programming is included in Appendix A, entitled "BASIC Language Summary." This segment briefly summarizes concepts essential to understanding BASIC: arithmetic and string operations; constants and variables; FOR...NEXT statements; GOSUB and RETURN; GOTO; IF...THEN statements; INPUT; INT; LET; LIST; MID$; PRINT; READ and DATA; REM; RND; RUN; SQR; STOP; subscripted variables; and TAB. These terms are not mentioned in the workbook so the teacher can decide how far he wants to take his students into programming. The guide is intended to provide enough information for the instructor to familiarize himself with the content, then teach the course to meet the needs of a particular class. Time is allotted for class discussion, work on projects, and a final presentation of the projects. The student workbook has ten different activities including a cursory introduction to the computer, flowcharting, and

COMPUTER LITERACY: AN INTRODUCTORY COURSE. (Cont'd.)

suggestions for programming projects. A glossary is also supplied. The posters included in the kit are copies of the illustrations appearing in the guide and the student workbook. The transparencies are copied from the pages of the student workbook. Unfortunately, these overhead transparencies are produced in a vertical format rather than the traditional horizontal format, and the print is too small for the transparencies to be used effectively in an average classroom.

This kit provides a good introduction to computer literacy. It is flexible and clear enough to be used with a wide range of audiences from students to teachers.

Adventure of the Mind: A Series on Personal Computing, a videocassette program recommended as a supplement to these lessons, is described on pages six and seven of the Division of Educational Media's 1982 *Advisory List of Computer-Related Audiovisual Materials* available in school media centers.

Publishers state that this kit is compatible with the Franklin ACE 1000 and available for the Atari, Commodore PET, TRS-80 (models III and Color), TI 99/4A, and the IBM PC.

RECORDINGS (CASSETTE TAPES)

HOW TO OPERATE THE APPLE IIe. 3 cassette tapes, guide $49.95. FlipTrack Training Tapes, 1982. (Available from East Ed.) Grades 6-12

HOW TO OPERATE THE APPLE II PLUS. 3 cassette tapes, guide $49.95. FlipTrack Training Tapes, 1982. (Available from East Ed.) Grades 6-12

These tapes offer a unique approach to introducing the first-time microcomputer user to the operation of an Apple. Before beginning the program the user must have a microcomputer, a monitor (preferably color), a disk drive (two disk drives are needed to take full advantage of the program), a blank diskette, the System Master diskette which accompanies the computer, and a cassette player. The tapes present information in two ways: the first is the "fast track" which introduces the user to basic operations and the second is the "full track" on the other side of the tape which gives further specific information for those who need or want it. This option is exercised by turning over the tape when prompted by the narrator. All three tapes conclude with quizzes which can be used as either pre- or posttests.

The first tape covers the basic steps involved in turning on the computer and in running a program from a diskette. It examines the computer keyboard and calls on the user to perform arithmetic calculations. The narrator guides the user through the listing of a program and explains how it can be changed by simply modifying a single line. The user makes the change and observes the effects on the program. The "flip track" explains how to set up the computer system, and suggests some advanced applications for the computer.

The second tape covers the use of the diskette and the disk drive for loading and storing programs. The "flip track" discusses printers, Integer BASIC, initializing a blank diskette, and how to use two disk drives.

The third tape explains how to copy and catalog files using the System Master, how to modify a program, and how to modify a screen display. The "flip track" covers much of the same information for a two disk drive configuration.

Each package includes a brief guide which summarizes the main points of the tapes. This indexed guide helps the user refresh his memory without having to search the tape in order to find the specific information. These tapes can

HOW TO OPERATE THE APPLE II (Cont'd.)

serve as a private tutor that patiently guides the novice user (teacher or student) through an introduction to the computer without resorting to the frequently impenetrable jargon of many computer manuals.

DIRECTORY OF PUBLISHERS AND PRODUCERS

A-W - Addison-Wesley Publishing Company, Inc., Jacob Way, Reading, Massachusetts 01867

Computer Sci. - Computer Science Press, Inc., 11 Taft Court, Rockville, Maryland 20850

Continental Pr. - The Continental Press, Inc., 520 East Bainbridge Street, Elizabethtown, Pennsylvania 17022

East Ed. - East Educational Services Company, P.O. Box 21024, Columbia, South Carolina 29221

Ency. Brit. Ed. - Encyclopaedia Britannica Educational Corporation, 425 North Michigan Avenue, Chicago, Illinois 60611

Hayden - Hayden Book Company, Inc., 50 Essex Street, Rochelle Park, New Jersey 07662

McGraw - McGraw-Hill Book Company, 1221 Avenue of the Americas, New York, New York 10020

MECC - Minnesota Educational Computing Consortium, 2520 Broadway Drive, St. Paul, Minnesota 55113-5199

Milton Bradley - The Milton Bradley Company, 443 Shaker Road, East Longmeadow, Massachusetts 01028

Phi Delta Kappa - Phi Delta Kappa, Inc., 8th & Union, P.O. Box 789, Bloomington, Indiana 47402

Random - Random House School Division, 400 Hahn Road, Westminster, Maryland 21157

SRA - Science Research Associates, Inc., 155 North Wacker Drive, Chicago, Illinois 60606

SVE - Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Illinois 60614

Watts - Franklin Watts, Inc., 387 Park Avenue South, New York, New York 10016

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